

Wyoming Nutrient Strategy

Priority Items and Next Steps

May 2017 Draft

Criteria Development

Priority 1: Identify Nutrient Conditions in Wyoming and Priority Watersheds for Nutrient Strategy Implementation

Nutrient Conditions

- Using available quantitative data (i.e., total nitrogen, total phosphorus, chlorophyll-a and cyanobacteria density) and scientific literature to identify thresholds where nutrients and response variables indicate potential impacts from nutrient pollution.
- Develop and periodically update a series of maps to provide a 1) screening level characterization of nutrient conditions/risks to Wyoming waterbodies and 2) help guide future development of numeric nutrient criteria.
- Periodically solicit quantitative data from state, federal, county and local entities for map updates.

Priority Watersheds for Nutrient Strategy Implementation

- Using prioritization matrix that combines waterbody use and nutrient risk potential (see Priority 5, below) and available quantitative data, prioritize waters for strategy implementation
- Solicit input from the Nutrient Work Group on selection of priority waters

Priority 2: Develop Numeric Criteria for Waters in the Short-term Based on Data Availability

- Continue/proceed with numeric criteria development for waterbodies listed in Table 1 (see Figure 1 for map) within the short-term, subject to available resources necessary for water quality sampling, analyses and the time needed for public input and review.

Table 1. Prioritization for Short-Term Nutrient Criteria Development in Wyoming

Priority for Criteria Development	Lakes/Reservoir Group	Criteria Development Status as of July 2016
1	Wyoming Basin	Under Development
2	Bighorn Basin	Continued Supplemental Data Collection
3	*Boysen Reservoir	Continued Supplemental Data Collection
4	Southeast Wyoming	Continued Supplemental Data Collection
5	*Seminoe Reservoir	Continued Supplemental Data Collection

*May include numeric nutrient criteria development for flowing waters tributary (inputs and outputs) to the reservoir

Priority 3: Update Nutrient Criteria Development Plan

Update the WDEQ Nutrient Criteria Development Plan with revisions to numeric nutrient criteria development timelines and milestones and the following nutrient criteria support group feedback:

- Where possible, coordinate with state and federal agencies, universities, and other entities for the collection of nitrogen, phosphorus, and chlorophyll a samples from Wyoming waters under scientifically valid sampling and analysis plans.

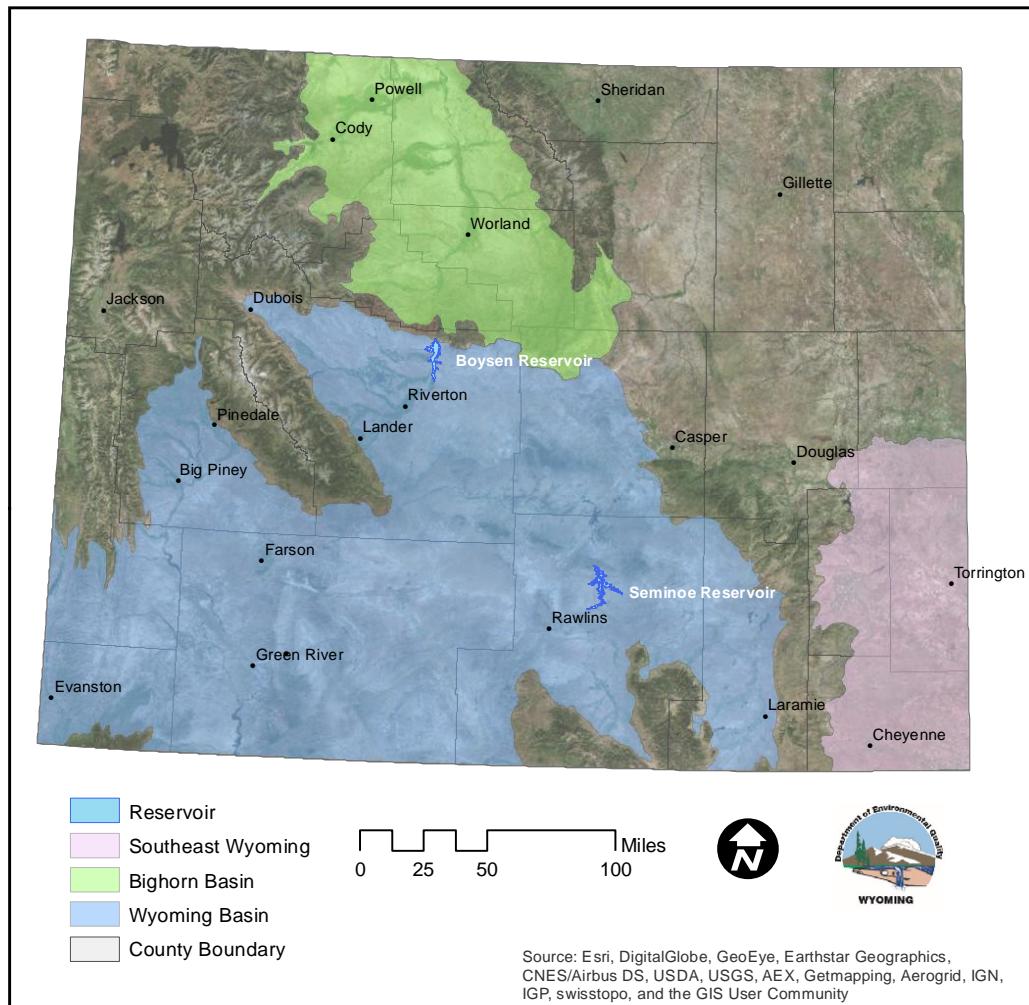


Figure 1. Lakes and reservoirs prioritized for short-term numeric nutrient criteria development.

- Continue to use stressor-response/modeling approaches and the scientific literature in developing numeric nutrient criteria, while soliciting input on and considering the validity and applicability of other approaches.
- Develop numeric nutrient criteria that are protective of aquatic life, recreation and drinking water designated uses.
- Continue to monitor other state and federal efforts to develop cyanotoxin, recreational, chlorophyll a and other numeric criteria, and explore potential relevance to waterbodies in Wyoming.
- Partner with other agencies (e.g., USFS, USGS, USFWS, USBLM, state agencies) in compiling and collecting water quality and other data for higher elevation lakes (i.e., those above 8,000 ft above sea level).

- Where appropriate and within the context of maximizing resources, consider opportunities to group waterbodies for numeric criteria development (e.g. all high elevation lakes, regional waters, etc.).
- When developing numeric criteria for individual or groups of waterbodies, consider protection of downstream uses so that waters meeting upstream nutrient criteria do not cause or contribute to downstream waterbody impairments. For example, if evidence suggests that stream/river criteria need to be more stringent to protect a downstream lake, there may be justification to adjust the criteria for the stream to be protective of the downstream lake.
- General process for development of numeric nutrient criteria and assessment methods
 - Phase 1 – Draft Numeric Nutrient Criteria and Implementation Recommendations
 - Develop draft numeric nutrient criteria based on nutrient thresholds derived from one or more of five standard approaches
 - Document draft numeric nutrient criteria development and implementation recommendations within a technical support document
 - External peer-review of draft numeric nutrient criteria
 - Nutrient criteria support group review of draft numeric nutrient criteria
 - With nutrient criteria support group guidance and review, finalize draft numeric nutrient criteria, statement of principal reasons and updates to the technical support document
 - Phase 2 – Promulgation of Numeric Nutrient Criteria
 - Initiate rule making process (public comment and response, Water and Wastewater Advisory Board review, Environmental Quality Council hearing, LSO review)
 - Submit for Governor’s signature
 - EPA review and approval
 - Phase 3 – Implementation
 - Develop methods on use of numeric nutrient criteria in assessment, permits, TMDL’s, etc. followed by nutrient criteria support group review
 - Update ‘Wyoming’s Methods for Determining Surface Water Quality Condition and TMDL Prioritization’ and any other necessary documents followed by public comment and response
 - Finalize ‘Wyoming’s Methods for Determining Surface Water Quality Condition and TMDL Prioritization’ and any other necessary documents

Priority 4: Interpretation of Existing Narrative Nutrient Criteria

- Review existing narrative criteria for potential modifications. Investigate how other states use narrative criteria to address nutrients.
- Develop more detailed methods for interpreting narrative criteria to protect designated uses from nutrient pollution.
- Criteria Development support group review and revisions to methods
- Propose updates to the ‘Wyoming’s Methods for Determining Surface Water Quality Condition and TMDL Prioritization’ followed by public comment and response
- Finalize ‘Wyoming’s Methods for Determining Surface Water Quality Condition and TMDL Prioritization’

Priority 5: Develop Numeric Criteria for Remaining Waters Based on Prioritization System

The combined waterbody use and nutrient potential risk matrix in Table 2 will be used to prioritize numeric nutrient criteria development in the long-term for the following:

- a) Lakes/reservoirs not listed in Table 1
- b) Streams/rivers directly tributary to lakes/reservoirs
- c) All other streams and rivers

Table 2 considers the combination of existing waterbody uses and nutrient potential risk in the prioritization of waterbodies for numeric nutrient criteria development based on existing and newly collected data from WDEQ and other agencies. This matrix not only recognizes the importance of varying uses to the public based on stakeholder input but also incorporates the relative potential risk of nutrient stressors/responses on those uses. Waterbody uses are categorized into three tiers, with impacts to human health (tier 1) receiving the highest level of importance followed by impacts to commerce (tier 2) and finally other uses (tier 3). Waterbodies (either individually or as a group) that receive a combined waterbody use and nutrient stressor/response assignment of 'very high' receive the highest priority for numeric nutrient criteria development. Following this logic, assignments of 'high' receive second priority, 'moderate' third priority and 'low' as fourth priority.

Table 2. Combined waterbody use and nutrient risk matrix for prioritization of waters for numeric nutrient criteria development.

		Waterbody Use						
		Tier 1 - Public Health		Tier 2 - Commerce		Tier 3 - Other		
		Drinking Water	Public Recreation (Swimming, Water Skiing)	Public Recreation (Boating, Fishing, Wading)	Public Recreation (Fishing, Wading)	Non-game Fisheries & Other Aquatic Life	Agriculture, Industry, Wildlife	
Nutrient Risk		Priority	High		Moderate		Low	
	High HABS Risk High Chlorophyll-a	High	Very High	Very High	High	High	Moderate	Moderate
	High TP or TN and Variable Chlorophyll-a	Moderate	High	High	Moderate	Moderate	Moderate	Moderate
	Low Chlorophyll-a, TP and TN	Low	Moderate	Moderate	Moderate	Moderate	Low	Low

Following use of the matrix in Table 2, special water designations such as blue-ribbon fisheries, Class 1 waters or national wild and scenic rivers may be used to elevate the priority of a waterbody for numeric nutrient criteria development.

Present prioritizations to the nutrient criteria support group. Recognizing limited resources and time needed to develop criteria, solicit feedback from the nutrient criteria support group on which waterbodies to pursue criteria development within the 'very high' and 'high' prioritization categories.

Point Sources

Priority 1: Identify, collect, and analyze facility effluent nutrient data from WYPDES Discharge Monitoring Reports (DMRs) and other sources.

- Review WWTP Information collected from USEPA Collection Request.
- Capture and analyze nutrient data from WYPDES DMRs and other sources.
- Organize data by hydrologic basin, facility type, flow volume and nutrient loading.
- On a basin-wide basis in priority watersheds, analyze point source nutrient data and compare with surface water occurrences of cyanobacteria density, chlorophyll a, etc.

Priority 2: Examine the feasibility of using effluent reuse to reduce surface water nutrient discharges

- Engage the USDA NRCS, the Wyoming Department of Agriculture, Wyoming Farm Bureau Federation, Conservation Districts, and other relevant stakeholders in discussions regarding the evaluation of effluent land application and reuse options.
- Develop a list of private and public land near WWTPs with land application or reuse potential, including available acreage, land uses, nearby land uses, surface waters, and other relevant information.
- Work with key stakeholders to a) identify individuals/groups interested in land application or effluent reuse options, and b) identify and address any expressed concerns regarding those options.
- Develop preliminary cost data to implement effluent reuse at specific treatment facilities.

Priority 3: Examine the feasibility of using underground injection, evaporation, and mechanical methods to reduce surface water nutrient discharges.

- Develop screening parameters to identify which facilities may be good candidates for one or more of these discharge alternatives.
- Develop preliminary cost data to implement discharge alternatives.

Priority 4: Use effluent data from individual facilities and other information to develop nutrient load reduction targets for those facilities.

- Establish nutrient reduction targets with assistance from WDEQ discharge and construction permits staff, nutrient criteria staff, and other stakeholders.

Priority 5: Identify facilities that should be initially exempt or subject to delayed implementation of nutrient reduction goals.

- Group facilities having very low, low, moderate, high, and very high relative loads.
- Provide reasons for exemptions, including cost, complexity, manpower requirements, etc.

Priority 6: Develop BMP-based nutrient reduction compliance strategies for relevant industrial, construction, and municipal stormwater permittees, to be implemented incrementally as five-year permits are renewed.

- Identify stormwater permittees discharging significant nutrient loads to impacted waters.
- Work with university, industry, and municipal groups to identify appropriate BMPs.
- Incorporate BMP implementation plans and compliance schedules into permits as needed.

Priority 7: Seek funding, technical assistance, and in-kind support from public and private sources (e.g., U.S. EPA, universities, partnering state agencies, foundations, etc.) to implement the actions listed above.

- Initiate discussions with US EPA regional and headquarters staff regarding program support.
- Identify nutrient strategy tasks that may be of interest to other agencies and organizations.
- Engage higher education institutions in discussions regarding, research, internships, etc.
- Discuss direct funding, public/private partnerships, and other venues to support the strategy.

Priority 8: Work with the Nutrient Strategy Education and Outreach Support Group.

- Identify education and outreach objectives, target audiences, and messages.
- Meet with education and outreach personnel to discuss related issues and outreach needs.
- Provide education and outreach to permittees.

Priority 9: Evaluate feasibility of rulemaking for interim effluent limits.

- Evaluate and address the need for rule-making for technology based effluent limitations, any exemptions, and any case-by-case compliance schedules.
- Upon completion of rulemaking, implement the new requirements in WPDES permits with appropriate compliance schedules.

Nonpoint Sources

Higher priority items are bolded, below.

Priority 1: Identify voluntary, incentive-based actions and how to encourage implementation.

Work with all appropriate sector groups* to:

- **Develop a series of key nonpoint source BMP examples/case studies to showcase effective nutrient management approaches and promote their adoption. Solicit examples/case studies through a Call for Information. Distribute BMP examples/case studies through publications, newsletters, social media, websites, and other outreach methods.**
- **Target nonpoint source nutrient outreach efforts to areas with waterbodies determined to be high priority for restoration. Local stakeholder groups will identify high priority waterbodies as future assessments identify waterbodies with nutrient challenges. For example, high priority waterbodies may be those with high recreation use, drinking water sources, waterbodies with early indications of nutrient problems, economically important waters, and Class 1 waters.**
- **Document the benefits (ecological and economic) of conservation practices and programs for nutrient reduction and use that information to report accomplishments of the nonpoint source community and encourage further implementation of conservation practices. Promote that incremental improvement is important—small projects can add up to a large impact.**

**Sector groups include agriculture, recreation, municipalities, land management agencies, state and federal agencies, conservation districts, local watershed groups, nonprofits, landowners, wastewater treatment plants, drinking water plants, and other stakeholders that may be identified during this process.*

Priority 2: Identify and target the most effective nutrient reduction practices in agricultural areas.

Work with agricultural producers, the Wyoming Department of Agriculture, Wyoming Natural Resources Conservation Service (NRCS), Conservation Districts, Wyoming Ag-Business Association, and other agricultural interest groups to:

- Identify and promote the most cost-effective agricultural nutrient management strategies (e.g., reduced erosion, irrigation water management, livestock waste management). Provide resources that identify cost-effective agricultural nutrient management practices and potential sources of funding for planning, implementing, and maintaining those practices.
- Identify and promote practices that specifically address nutrient challenges associated with beet crops (e.g., plant residue to protect against wind erosion).
- Encourage that those providing producers with technical assistance include nutrient management as part of the conservation practice planning process. Evaluate ways to increase the ability to provide technical assistance to producers. Discuss with NRCS whether there may be ways to streamline the NRCS technical service provider (TSP) process while ensuring that high quality assistance is maintained.

- **Encourage improved livestock waste management to aid in reducing nutrient inputs to surface and ground waters. Educate producers that, if applied correctly, manure is an economic asset. Promote application systems (e.g., liquid application, composting and solids application) that are appropriate for the situation. Encourage innovative ways to connect producers to nurseries/landowners to use manure for fertilizer.**
- Ensure that nutrient management strategies are tailored to individual farm conditions (e.g., type of activities, landscape location, proximity to waterbodies, resources and abilities of producers, benefits to producers). Promote broad scale nutrient management planning as a way to reduce costs and increase profits, by better targeting fertilizer applications (i.e., employ practices focused on the right source/rate/time/place), retaining and building soil fertility, improving resource use (e.g., manure, irrigation water), and expanding use of beneficial technologies (sprayer sensors, soil sampling, irrigation, etc.).
- Document examples of BMPs that improve water quality but are also an economic benefit to producers (i.e., identify win-win situations). In general, work to find solutions to nutrient pollution that are economical for the land owner and society. Help producers and others recognize and understand the economic benefits of BMPs.
- **Where appropriate and considering other natural resource concerns (e.g, wetlands, waterfowl, etc.), encourage conversion from flood to sprinkler irrigation to reduce nutrient loading to surface waters. Ensure producers are aware of sources of technical and financial assistance. Ensure producers with fields not conducive to pivots are provided assistance to evaluate other methods of irrigation.**
- **Promote cropping systems based on the NRCS Soil Health Initiative, especially in subwatersheds where nutrient exports from agricultural lands to surface water and ground water is a concern. Work with NRCS to find ways to assist with promoting the Soil Health Initiative. The goal of the Soil Health Initiative is to better inform producers about soil health and manage the soil and nutrient inputs in such a way that the ecology is balanced, resulting in economic and environmental improvements and equivalent or better yields.**
- Encourage university research on soil health conservation practices. Engage educational institutions in developing, promoting, and providing nutrient management resources to the agricultural community.
- Explore the use and promote the benefits of split fertilizer applications, where a portion of the recommended amount is applied initially and the remainder applied after emergent plant tissue analysis.
- Conduct outreach by promoting early adopters in each county and promoting/showcasing their success, hosting demonstrations and field days, encouraging use of the Haney Soil test, and providing producers with information on how to identify nutrient reduction opportunities on their farms/ranches.
- Integrate nutrient management and soil/water stewardship into existing programs for younger agricultural audiences (e.g., Future Farmers of America, Ag in the Classroom, 4H, Worldwide Day of Monitoring and other educational programs hosted by Conservation Districts).

Priority 3: Determine how to reduce nutrients from stormwater in non-MS4 communities.

Work with city and county governments, Conservation Districts, the Wyoming Association of Municipalities, urban interest groups, non-profit organizations, and residents to:

- Based on future water quality assessments, identify areas where non-MS4 towns and cities might be causing or contributing to elevated nutrient concentrations in surface waters, and make these areas high priority for awareness, education, and BMP promotion efforts.
- Engage the Wyoming Association of Municipalities, the Wyoming Groundskeepers and Growers Association, the local conservation districts, cooperative extension offices, the Rural Water Conference, and other relevant entities in education, outreach, and demonstration activities designed to reduce nutrient runoff in developed areas.
- Explore ways to engage university students/faculty, water quality monitoring volunteers, and others in assessing and responding to identified nutrient sources in developed areas (e.g., through periodic water sampling, streambank stabilization/vegetation projects, workshops on lawn management).
- Review current Wyoming Best Management Practice manuals and update as necessary with practices that landowners can do to prevent or control nutrient runoff to surface waters or ground water.
- **Develop and implement an outreach program (i.e., awareness-building, educational, and promotional) aimed at reducing unnecessary nutrient applications to golf courses, park land, and residential lawns. Engage Conservation Districts, homeowner groups, park managers, landscaping service providers, consultants, and related associations and other groups in conducting awareness-building, educational, and promotional activities regarding nutrient management. Encourage the use of soil testing to determine nutrient needs for golf courses, parks, and lawns prior to applying nitrogen and phosphorus fertilizers.**
- In areas where pet waste may be impacting waterbodies due to waste volumes and surface water proximity, conduct targeted waste pickup programs (e.g., outreach, signage, bag stations, waste containers, etc.).

Priority 4: Determine how to reduce nutrients from septic systems.

Work with county governments, municipal governments, septic system providers, Conservation Districts, state agencies, landowners, and others to:

- **Encourage locally led efforts to use mapping and water quality assessments to identify areas where higher-density septic system installations (permitted and unpermitted) may be causing or contributing to elevated nutrient concentrations in surface water and/or groundwater. Also encourage locally-led efforts to use mapping tools, monitoring, outreach to homeowners, and other methods (e.g., dye tracing tests) to identify failing septic systems within a watershed.**
- Encourage that local sponsors apply for WDEQ CWA Section 319 funding when pre-1973 septic systems are found to be causing or contributing to elevated nutrient concentrations and when all other 319 grant funding eligibility criteria are met.

- Explore other funding sources (e.g., Clean Water State Revolving Fund, Drinking Water State Revolving Fund) to address septic system nutrient impacts on priority waters.
- Investigate the possibility of mobilizing existing water and sewer districts to create loan programs that could access funds from the CWA SRF Green Reserve and other programs and loan them out at low interest rates for septic system repair, replacement, and/or major maintenance.
- Engage septic system service providers (e.g., designers, installers, pumpers, inspectors), county public health staff, Conservation Districts, and other involved entities in exploring approaches to address existing and future septic system challenges related to nutrient impacted ground water and surface waters.
- Explore ways to ensure that all cumulative/collective septic system nutrient loads are analyzed under Chapter 23 of the Wyoming Water Quality Rules and Regulations when reviewing subdivision and new development plans (i.e., rather than just the loads from the proposed development) so that nutrient inputs don't increase incrementally to the point where groundwater or surface waters are threatened.
- Provide support to stakeholders interested in better understanding and pursuing advanced septic system treatment, cluster systems, composting toilets, or other alternatives to traditional septic systems that may result in less nutrient loading to surface and ground water.

Priority 5: Recommend how different agencies can work together on planning, implementation, and documentation.

Work with all appropriate partnering agencies and stakeholders to:

- **Explore approaches for encouraging locally led prioritization of nutrient management activities by identifying subwatersheds that may have high/moderate/low nutrient challenges. Provide mechanisms to announce locally prioritized subwatersheds statewide to better inform funding agencies where technical and financial assistance could be prioritized.**
- Coordinate with the Wyoming Association of Conservation Districts and the Conservation Districts to conduct nutrient monitoring where there is local interest; provide technical assistance/training to those districts interested in monitoring for nutrients.
- **Convene a process among relevant state and federal agencies to identify a common objective, consistent message, and a unified strategy for addressing nutrient challenges across the state. In general, encourage a watershed-based approach to nutrient management. Encourage collaborative processes that include both point and nonpoint sources and that seek to find the most cost-effective solutions for a given watershed. Use outreach to help the public understand the costs of addressing NPS pollution in a watershed.**
- Investigate opportunities to reuse nutrient-rich runoff and/or wastewater where possible – e.g., by irrigating lands with lagoon or other effluent – in order to decrease nutrient discharges and reduce conventional nutrient applications.

- Research and provide stakeholders with information on nutrient trading programs, if information on this subject is requested by stakeholders in the future.
- Encourage project effectiveness monitoring when nonpoint source BMP projects are implemented for nutrient reductions, in order to better document improvements to water quality and refine knowledge about what BMPs are effective.
- Encourage communication across agencies, organizations, and landowners to comprehensively document statewide nutrient reduction efforts and benefits to water quality and citizens. Work to ensure that all stakeholders working to reduce nutrients in a watershed are working together in a coordinated fashion such that all parties are aware of what the others are doing.
- To the extent possible, work with the various sectors (e.g., agriculture, wastewater, stormwater, mining, industrial, park/recreational land management) to document existing BMPs installed or implemented in Wyoming, and publicize a) what they are, b) why they were adopted, c) how they work, d) what sort of benefit they generate (i.e., quantitatively or qualitatively), and e) where more of them are needed – especially as it relates to where people live, and how they manage their homes and property. In general, make sure that we learn from existing and currently ongoing nutrient reduction efforts.
- Encourage that noteworthy nutrient reduction efforts are nominated for existing natural resource stewardship or recognition programs.
- Provide education/training on nutrients and nonpoint source BMPs to interested parties. In particular, ensure that nutrient education and outreach is provided to residential households.
- Work with the Wyoming Association of Conservation Districts to consider including nutrient-related information in the biennial Watersheds Progress Report, as relevant information becomes available, or as successful projects are completed that can be highlighted.

Priority 6: Recommend protection strategies for drinking waters supplies.

Work with appropriate partnering agencies and interest groups to:

- Identify drinking water suppliers dependent on waters that may be impacted now or in the near future by elevated nutrient concentrations, for the purpose of exploring and promoting source water protection activities (e.g., assessment, planning, and implementation of protective strategies).
- Explore potential funding sources for wellhead and other source water protection efforts.
- Engage the Wyoming Association of Rural Water Systems and other relevant stakeholders (conservation districts, public/private sector entities) in planning and executing source water assessment, planning, and protection activities.

Education and Outreach

Priority 1: Refine and Finalize Plan for Educating the Public About and Responding to Harmful Algal Blooms in Wyoming

Working with sister state agencies, federal agencies, and other stakeholders, craft and implement an integrated strategy for:

- Educating recreationists (boaters, anglers, hikers, etc.) and the public in general on what harmful algal blooms are, what to look for, and the potential health risks associated with harmful algal blooms. Whenever possible, coordinate with other organizations and agencies to disseminate information regarding harmful algal blooms.
- Educating the public and recreationists on how to identify and if necessary, report, excessive or suspicious algal blooms (i.e., similar to the current aquatic invasive species program)
- Educating land and water management agencies about their role in responding to HABs
- Responding to reports of excessive/suspicious algal blooms, through timely investigation and evaluation by relevant state/federal public agencies
- Implementing public agency actions (e.g., notifications, beach closings, if necessary, etc.) intended to protect public health and safety
- Evaluate need for website on HABs status of publicly accessible lakes and reservoirs in Wyoming
- Evaluate need for additional website, apps, etc. that allow public reporting of HABs

Priority 2: Improve DEQ Nutrient Pollution Website

Develop a Wyoming DEQ web site that provides:

- Basic information about nutrients, their sources, impacts on surface waters
- Available data on nutrient concentrations (TP, TN) and response parameters (chlorophyll a, cyanobacteria concentrations, etc.) for surface waters in the state characterized as low, medium, high
- Wyoming's Nutrient Reduction Strategy: strategy should be a clickable website with the priorities/key next steps for each support group
- Information on how to reduce nutrient pollution via links to other resources such as existing or updated BMP manuals (e.g., targeted to homeowners, small livestock producers, recreational land managers – parks, golf courses, etc., septic system owners, and so on).

Priority 3: Educate the Public About Nutrient Pollution in Wyoming and Wyoming's Efforts to Address Nutrient Pollution

- Once the Wyoming Nutrient Strategy is complete, develop materials (e.g., press release, video, etc.) to outreach to the public about nutrient pollution and the Wyoming Nutrient Strategy
- Materials should focus on sources, impacts, and appropriate responses to nutrient pollution
- Materials should build awareness and educate the public regarding the work of state agencies and other partners in addressing nutrient pollution (e.g., through the Nutrient Work Group, the four Nutrient Support Groups, etc.)

- WDEQ will work with the various sector groups (agriculture, wastewater treatment, stormwater, land management, recreation, etc.) to identify, characterize, publicize and promote nutrient management practices that have been implemented in Wyoming.
- Whenever possible, coordinate with other agencies and organizations to disseminate information.
- Whenever possible, follow these recommendations when developing outreach materials:
 - Use “nutrient pollution” rather than “nutrient enrichment” to convey the potential threat that nutrients pose to Wyoming waters
 - Focus on the broad nature of nutrient sources (e.g., agriculture, wastewater treatment facilities, residential lawns, managed landscapes, soil erosion, etc.)
 - Highlight that there are well-known and proven management strategies (e.g., livestock waste management, erosion prevention and sediment control, improved wastewater treatment / reuse technologies, etc.) for reducing nutrient impacts
 - Tie nutrient management efforts to water quality, healthy soil and agriculture, tourism, and economic growth
 - Involve local stakeholders in nutrient outreach efforts and tailor nutrient management strategies to local nutrient challenges, local conditions, and local capacity for implementation.

Priority 4: Planning and Public Reporting on Nutrient Strategy Implementation

- WDEQ will identify priorities and timeframes for implementing the Wyoming Nutrient Strategy. Priorities will be presented to the Wyoming Nutrient Work Group during meetings, conference calls, or other methods.
- WDEQ will work with the various sector groups to identify other groups’ priorities for implementing the Wyoming Nutrient Strategy.
- WDEQ will produce a semi-annual summary of activities associated with the Wyoming Nutrient Strategy. Summaries will be presented to the Wyoming Nutrient Work Group during meetings, conference calls, or other methods. Following presentation to the Wyoming Nutrient Work Group, summaries will be made available to the general public via press release, the DEQ website, and/or other methods.

Table 1. Education and outreach group outreach strategy components.

Topic	Audience	Goal	Content	How to Outreach
Nutrient Pollution and Nutrient Strategy	General Public	Awareness and Education	<ul style="list-style-type: none"> - Background on nutrient pollution - Information about nutrient strategy effort - Describe how prevalent nutrient pollution is in Wyoming (maps of available data) - Explain different sectors involved in strategy, goals of strategy, current status of strategy 	<ul style="list-style-type: none"> - DEQ website - Press release - Coordinate with other groups to provide similar information
Implementation of Nutrient Strategy	General Public, Nutrient Work Group	Awareness and Education	<ul style="list-style-type: none"> - Semi-annual report on activities associated with the Nutrient Strategy 	<ul style="list-style-type: none"> - DEQ website - Press release
Harmful Algal Blooms	General Public	Awareness and Education	<ul style="list-style-type: none"> - What are harmful algal blooms - Where and when blooms may occur - What to look for - Risks associated with harmful algal blooms (pets, swimming, livestock) 	<ul style="list-style-type: none"> - DEQ website - Press release - Veterinarians - Pet and feed stores
Harmful Algal Blooms	General Public	Action	<ul style="list-style-type: none"> - What to do you do if you suspect a HAB (occurs after HABs action plan is developed and finalized) 	<ul style="list-style-type: none"> - Fishing Regulations - Boat Registration - Fishing Licenses - DEQ website
Ways to Reduce Nutrient Pollution	General Public	Action	<ul style="list-style-type: none"> - Lawn Fertilization - Lawn Watering - Landscaping Near Watercourses - Septic System Maintenance - Animal waste 	<ul style="list-style-type: none"> - Fertilizer sellers - Master Gardeners - Barnyards & Backyards - Homeowner Associations - University Extension - Water Bills